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EXAMINER	
BASOM, BLAINE T	

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2173	13

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/747,634	CARD ET AL.	
	Examiner	Art Unit	
	Blaine Basom	2173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) *21-24 and 27-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-20 and 31* is/are rejected.

7)☒ Claim(s) *3,4 and 25-27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 December 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

The Examiner acknowledges the Applicants' amendments to claims 1, 3, 4, 14, 15, and 16, and the Applicants' addition of new claims 17-31. Regarding amended claims 1, 13, and 16, the Applicants submit that neither Herman ("Latour – A Tree Visualization System," by Herman et al.) nor Martino (U.S. Patent No. 6,486,898 to Martino et al.) teach or suggest "boundingly displaying hierarchically linked information," as has been added to claims 1 and 16, or "creating a bounded tree structure," as has been added to claim 13. In response, the Examiner notes that the word, "boundingly," is not recognized in the English language. The Examiner searched *Merriam-Webster's Collegiate Dictionary, Tenth Edition*, in addition to several on-line dictionaries (*http://dictionary.reference.com*, *http://www.yourdictionary.com*, and *http://dictionary.cambridge.org*), and did not find any definition for the word, "boundingly." Similarly, the specification of the present application provided no definition of the word "boundingly." Given the root of the word, the Examiner interprets "boundingly displaying hierarchically linked information" to be synonymous with "creating a bounded tree structure visualization of hierarchically linked information," like expressed by claim 13. The Examiner maintains that, given the broadest and most reasonable definition of the word "bounded," Herman in fact teaches creating a bounded tree structure visualization of hierarchically linked information. Specifically, it is understood that the tree structure described by Herman is displayed within a window or display screen, as is known in the art, and is therefore confined, i.e. bounded, by this window or display screen. Regardless of whether or not the tree may be panned or scrolled, as Herman discloses, the displayed portion of the tree is still bounded by the

edges of the window or display screen in which it is displayed. The displayed portion of the tree structure of Herman is thus considered a "bounded tree structure visualization." Additionally, Martino also presents a technique for creating a bounded visualization of linked information, the linked information specifically being bounded by a particular display area (see column 8, line 51 – column 9, line 27).

Further regarding claims 1, 13, and 16, the Applicants submit that Herman does not teach "dynamically" identifying a focus node, as has been added to each of these claims. In response, the Examiner notes that Martino teaches dynamically identifying a reference node, i.e. focus node (for example, see column 6, line 66 – column 7, line 24). Therefore, as is more specifically shown below, the combination of Herman and Martino in fact teaches dynamically identifying a focus node.

Again regarding claims 1, 13, and 16, the Applicants argue that neither Herman nor Martino teach or suggest generating a degree of interest value for each node of a plurality of nodes, whereby as has been added to each of these claims, the degree of interest value is relative to a sibling node order. In response, the Examiner submits that Lewis (U.S. Patent No. 5,987,469 to Lewis et al.) provides such a feature when joined with the combination of Herman and Martino, as is shown below. Thus the Applicants' arguments with respect to claim 1, 13, and 16 have been considered, but are moot in view of the additional teachings of Lewis.

Lastly, at various points in their response, the Applicants suggest that there does not exist motivation to combine the Herman and Martino references, as was done in the previous Office Action. The Applicants, however, fail to provide any specific reasoning or explanation for such a suggestion. Regardless, the examiner maintains that due to their similar teachings, one of

ordinary skill in the art would have in fact been motivated to combine the Herman and Martino references, as is more fully explained below.

Claim Objections

Claim 26 is objected to because of the following informalities: "aggragation" is spelled incorrectly. Appropriate correction is required.

Election/Restrictions

Newly submitted claims 21-24 and 28-30 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: claims 21-24 are directed to a method which comprises displaying linked nodes, whereby each node is associated with a plurality of faces, and whereby all of these nodes may be rotated based on user input. Similarly, claims 28-30 are directed to a method which comprises selectively displaying information in a node based on the size of the node. These inventions are distinct from that which was originally claimed, because they are separately usable, particularly in applications involving displaying a larger amount of information than that provided by a node. Moreover, the search for these inventions is not required for the originally claimed invention.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution

on the merits. Accordingly, claims 21-24 and 28-30 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 17-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Specifically, claim 17 recites, "determining a fractional degree of interest adjustment for the degree of interest based on the distance between sibling nodes." The specification of the present application offers no such teaching. Instead, on page 12 for example, the specification teaches that "[t]he further the sibling is from the focus node based on the ordering, the more the fractional decrement in it DOI." Thus it appears that the specification teaches determining a fractional degree of interest adjustment for a sibling node based on the node's distance to the focus node, and NOT based on any distance between sibling nodes. As claims 18-20 depend on claim 17, and include all of the limitations of claim 17, claims 18-20 are rejected for the reasons in which claim 17 is rejected.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 10, 11, 13, 14, 15, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article entitled "Latour – A Tree Visualisation System," which is attributed to Herman et al. (and hereafter referred to as "Herman"), over U.S. Patent No. 6,486,898, which is attributed to Martino et al. (and hereafter referred to as "Martino"), and also over U.S. Patent No. 5,987,469, which is attributed to Lewis et al. (and hereafter referred to as Lewis). In general, Herman discloses "Latour," which is a computer-implemented system for visualizing hierarchically organized data (see section 1). In particular, Herman discloses that Latour is used to organize and display such hierarchically organized data as a tree comprising a plurality of nodes and links (see section 2). Herman is consequently considered to teach a method for displaying hierarchically linked information, the hierarchically linked information comprised of a plurality of nodes having one or more links to other nodes.

Regarding claim 1, Herman discloses that Latour includes a feature which provides visual clues based on the structural complexity of a tree. More specifically, Herman discloses that a metric value is calculated for each node of the tree, wherein particularly, this metric value may be a degree of interest value (see section 3.2). Using these values, the links which are associated with more interesting parts of the tree are highlighted so as to allow the user to more effectively explore the tree, which may hold a large amount of nodes (see section 3.2). Herman thus teaches

generating a degree of interest value for each of a plurality of nodes and laying out this plurality of nodes based on their associated links in a tree structure. This tree structure of Herman is understood to be displayed within a window or display screen, as is known in the art, and is therefore considered to be boundingly displayed. However, Herman does not explicitly disclose that the degree of interest value is related to a focus node and sibling node order and corresponds to a node size. It is therefore understood that Herman does not teach: dynamically identifying a focus node for a plurality of nodes; generating a degree of interest value for each of the plurality nodes *relative to this focus node and sibling node order and corresponding to a node size*; laying out the plurality of nodes whereby the nodes are sized based on their associated degree of interest values; identifying and performing any node compression necessary for boundingly displaying the hierarchically linked information based on the layout of the plurality of nodes; and displaying the hierarchically linked information based on the layout of the plurality of nodes and node compression on a display area, as is expressed in claim 1.

Like Herman, Lewis presents a method for displaying hierarchically-linked information comprising a plurality of nodes, whereby specifically, a metric value, considered a degree-of-interest value, is determined for each node (see column 1, lines 14-55; and column 4, lines 30-39). Regarding the claimed invention, Lewis further teaches ordering and sizing sibling nodes based on this metric value (see column 4, lines 40-65).

Therefore, it would have been obvious to one of ordinary skill in the art, having the teachings of Herman and Lewis before him at the time the invention was made, to modify the tree structure taught by Herman such that the nodes of the tree are ordered and sized based on their degree-of-interest values, as is done by Lewis. It would have been advantageous to one of

ordinary skill to utilize such a combination because ordering and sizing the nodes visually provides more information to the user when traversing the tree, as is demonstrated by Lewis, and thus allows for more efficient searching of the tree. In summary, this combination of Herman and Lewis teaches generating a degree of interest value for each of a plurality of nodes, the degree of interest value relative to sibling node order and corresponding to node size, and laying out the plurality of nodes positioned based on associated links and sized based on associated degree of interest values in a tree structure. However, the combination does not explicitly teach dynamically identifying a focus node for any of the plurality of nodes, whereby the degree of interest value for each node is relative to this focus node, and identifying and performing any node compression necessary for boundingly displaying the hierarchically linked information based on the layout of the plurality of nodes, and displaying the hierarchically linked information based on the layout of the plurality of nodes and node compression on a display area.

Like Herman and Lewis, Martino presents a method for displaying linked nodes which represent information items. Concerning the claimed invention, Martino discloses that a user may select one of these nodes, whereby in response, nodes that are more closely related to this node (in this case, nodes that are fewer links away from this node) are displayed in a larger size than nodes that are not as closely related (see column 3, lines 42-57). Thus Martino teaches: dynamically identifying a focus node for a plurality of nodes, wherein particularly, this focus node is selected by the user; generating a degree of interest value for each of the plurality of nodes, the degree of interest value relative to the focus node and corresponding to node size, wherein particularly, this degree of interest value is associated with the distance between the focus node and each of the plurality of nodes; laying out the plurality of nodes positioned based

on associated links and sized based on associated degree of interest values; identifying and performing any node compression necessary for displaying the linked information based on the layout of the plurality of nodes; and, boundingly displaying the linked information based on the layout of the plurality of nodes and node compression on a display area.

It would have therefore been obvious to one of ordinary skill in the art, having the teachings of Herman, Lewis, and Martino before him at the time the invention was made, to modify the tree structure taught by Herman and Lewis, such that the degree of interest value for each node is further dependent upon the node's distance from a user-selected focus node, as is taught by Martino. It would have been advantageous to one of ordinary skill to utilize such a combination because "[b]y displaying nodes in a prominence that depends upon each node's degree of separation from a user's point of reference, the nodes that are likely to be of interest to the user for subsequent access are easily discernable to the user, and nodes that are likely to be of little interest to the user are less obtrusive to the user," as is expressed by Martino (see column 3, lines 56-62).

With respect to claim 2, Martino discloses that a node in a display of linked nodes may be selected, whereby in response to each selection, nodes that are more closely related to the selected node are displayed in a larger size than nodes that are not as closely related, as is shown above. It is interpreted that a user may repeatedly perform such selections. For example, figure 1 shows a plurality of nodes with no nodes selected, figure 2 shows the display of figure 1 with the node designated by reference number 201 selected, and figure 3 shows the display of figure 2 with the node designated by reference number 301 selected (see column 3, line 42 – column 4, line 6). Consequently, it is understood that with the above-described combination of Herman,

Lewis, and Martino, a user may select a second focus node, whereby in response to this selection, a second degree of interest value relative to this second focus node is generated for each of the plurality of nodes, the plurality of nodes are positioned based on their associated links and sized based on their associated second degree of interest values, any node compression necessary for displaying the linked information based on the layout of the plurality of nodes is identified and performed, and the linked information is displayed based on the layout of the plurality of nodes and node compression on the display area.

As per claims 10 and 11, it is interpreted that the trees generated by the above-described combination of Herman, Lewis, and Martino display a first set of data items associated with the nodes of the tree (see column 8, lines 22-50 of Martino). For example, Martino discloses that the nodes in the tree may each display an icon, which is understood to denote information. The user may select such an icon, whereby in response to this selection, more detailed information is provided (see column 8, lines 37-40). Thus the combination of Herman, Lewis, and Martino described above is further considered to teach detecting whether a user has requested that a second set of data items associated with the nodes be displayed, whereby in response to detecting such request, the second set of data items is displayed.

As per claims 13-15, it is understood that the above-described method for displaying a tree, which is taught by the combination of Herman, Lewis, and Martino, is implemented with a computer (for example, see column 1, lines 7-8 of Martino). Such a computer is considered a system like that recited in claims 13-15. For example, this computer displays a tree, allows the user to select a node in the tree, and adjusts the size of the nodes in the tree in response to this selection, as is shown above. Consequently, it is understood that such a computer has a "display

means," and "input device," and a "visualization processing element," like that expressed in claim 13. Similarly, since this computer generates a degree of interest for each node in the tree, lays out the plurality of nodes in the tree based on these values, and identifies and performs any necessary node compression, as is described above, it is understood that this computer comprises a "degree of interest calculation element," a "node layout element," and a "node compression element," like that recited in claim 14. Lastly, as this computer expands nodes that are closely related to the focus node, as is shown above, it is understood that this computer comprises a "node expansion element" as recited in claim 15.

Regarding claim 16, the above-described method of Herman and Martino for displaying a tree is implemented on a computer, as is shown above. Consequently, it is understood that such a method is realized with some sort of program storage device readable by the computer. Such a program storage device implementing the above-described method is considered equivalent to that recited in claim 16.

As per claim 31, Martino discloses that a user may select more than one reference node, i.e. focus node, whereby in response, the remaining nodes are positioned and sized in relation to this plurality of user-selected focus nodes (see column 9, line 54 – column 10, line 1). Thus the combination of Herman, Lewis, and Martino described above is further considered to teach a method like that recited in claim 31, which involves the selection of two focus nodes.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Herman, Lewis, and Martino described above, and also over the document entitled "Improving the Visualization of Hierarchies with Treemaps: Design Issues and

Experimentation," which is attributed to Turo et al. (and hereafter referred to as "Turo"). As shown above, the combination of Herman, Lewis, and Martino presents a method, like that of claim 11, wherein a first set of data items associated with the nodes in a tree structure is displayed, and wherein the user may request that a second set of data items associated with the node be displayed. The combination, however, does not explicitly teach that the nodes are displayed to appear as three-dimensional objects having a plurality of display surfaces and wherein the second set of data items associated with a node is displayed by animating movement of the node to display a second surface of the node having the second set of data items.

Like the combination of Herman, Lewis, and Martino described above, Turo discloses a method for presenting hierarchical information via a plurality of nodes. More specifically, and regarding the claimed invention, Turo teaches that each of these nodes may be displayed as three-dimensional pyramid, wherein the height and each of the four sides of the pyramid designate data items (see section 4.4). It is interpreted that the user may move his or her perspective point (see section 4.4) to view the sides of the node, wherein as the user moves his or her perspective point, the rotation of the node is animated.

It would have therefore been obvious to one of ordinary skill in the art, having the teachings of Herman, Lewis, Martino, and Turo before him at the time the invention was made, to modify the tree structures of Herman, Lewis, and Martino, such that nodes of the tree structure are each displayed as three dimensional objects having a plurality of surfaces, wherein such a node may be rotated to display a second set of data items associated with the node, as is done by Turo. It would have been advantageous to one of ordinary skill to utilize such a combination

because three dimensional nodes provide a visually-appealing means for presenting a second set of data items, as is demonstrated by Turo.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Herman, Lewis, and Martino described above, and also over the document entitled "Cone Trees: Animated 3D Visualizations of Hierarchical Information," which is attributed to Robertson et al. (and hereafter referred to as "Robertson"). As shown above, the combination of Herman, Lewis, and Martino presents a method, like that of claim 1, which includes a step of laying out a plurality of nodes positioned based on associated links and sized based on associated degree of interest values in a tree structure. The combination, however, does not explicitly disclose sizing the tree structure such that it fits within a single display area. In other words, the combination does not teach determining if the structure will fit vertically in the display area, and if the layout does not fit into the display area, reducing the node spacing and sizes proportionally until the node-link structure fits in the display area, as is recited in claim 5.

Like the combination of Herman, Lewis, and Martino described above, Robertson discloses a method for presenting hierarchical information in trees. More specifically, and regarding the claimed invention, Robertson teaches laying out these trees such that they fit into a single display area. For example, the figures on page 193 show trees of various sized which all fit within a single display area. It is interpreted that when laying out these trees, there is some determination of whether the tree structure will fit into the display area, particularly whether it will fit vertically into the area, and if it does not fit into the display area, the node spacing and sizing is reduced proportionally until the structure fits into the area (see the section entitled "Cone Trees: Basic Approach" on page 190).

It would have been obvious to one of ordinary skill in the art, having the teachings of Herman, Lewis, Martino, and Robertson before him at the time the invention was made, to modify the tree structures of Herman, Lewis, and Martino, such that they are sized to fit within a single display area, as is taught by Robertson. It would have been advantageous to one of ordinary skill to utilize such a combination because a tree structure presented within a single display screen provides the user the ability to more efficiently view the overall organization of the hierarchically-linked information displayed by the tree than that of a tree structure that is not fitted within a single display screen, as is demonstrated by Robertson.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the above-described combination of Herman, Lewis, Martino, and Robertson. As shown above, the combination of Herman, Lewis, and Martino presents a method, like that of claim 1, which includes a step identifying and performing any node compression necessary for displaying linked information based on the layout of a plurality of nodes. This linked information is particularly displayed in a tree. Moreover, Herman discloses that various subtrees in this tree may be encapsulated in triangular shapes, whose size and geometry is proportional to the size of the subtree (see section 3.2). Herman, however, discloses that this is done in order to provide a better overall view of the tree, and not to fit the tree within a given display area. In other words, the above-described combination of Herman, Lewis, and Martino does not explicitly teach determining from the layout of the plurality of nodes that nodes will not fit vertically into the display area and identifying subtrees in this layout causing the layout not to fit in the display area, as is expressed in claim 8.

As described above, Robertson teaches the benefit of laying out trees such that they fit into a single display area. It is understood that causing various subtrees to be displayed as triangular shapes, as is done by Herman, reduces the overall size of the tree.

Therefore, it would have been obvious to one of ordinary skill in the art, having the teachings of Herman, Lewis, Martino, and Robertson before him at the time the invention was made, to modify the tree structures of Herman and Martino, such that they are sized to fit within a single display area, as is taught by Robertson. One obvious means to do this would be to cause large subtrees within the tree to be displayed as triangular shapes so that the entire tree may be fit within a single display area. It would have been advantageous to one of ordinary skill to utilize such a combination because a tree structure presented within a single display screen provides the user the ability to more efficiently view the overall organization of the hierarchically-linked information displayed by the tree than that of a tree structure that is not fitted within a single display screen, as is demonstrated by Robertson. Thus it is understood that the above-described combination of Herman, Lewis, Martino, and Robertson teaches determining from the layout of the plurality of nodes that nodes will not fit vertically into the display area, identifying subtrees in this layout causing the layout not to fit in the display area, and causing the subtrees to be displayed in a manner proportional to the size of the subtree.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the above-described combination of Herman, Lewis, Martino, and Robertson. As described above, the combination of Herman, Lewis, Martino, and Robertson discloses a method for displaying a tree, wherein particularly, the tree is sized to fit within a given display area. Thus it is interpreted that

if the tree is found to be too small for the display area, i.e. there is unused display area, the nodes and spaces between the nodes are increased in size such that the tree fits the display area. As shown above, the size of the nodes is associated with a degree of interest value generated for the node. Moreover, Herman discloses that only the most interesting nodes may be displayed in the tree, the rest of the nodes being encapsulated in triangular shapes whose size and geometry is proportional to the portion of the tree in which the shape represents (see section 3.2). It is therefore interpreted that the method disclosed by Herman, Lewis, Martino, and Robertson includes the steps of determining whether there is unused display area for the tree, identifying the most interesting nodes for utilizing the unused display area, and generating new degree of interest values, i.e. sizes, for these most interesting nodes and linked decedents.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Herman, Lewis, and Martino described above, and also over U.S. Patent No. 5,786,820, which is attributed to Robertson. As shown above, the combination of Herman, Lewis, and Martino presents a method, like that of claim 1, which includes a step of identifying and performing any node compression necessary for displaying linked information based on the layout of a plurality of nodes. The combination, however, does not explicitly disclose sizing the tree structure such that it fits within a single display area. In other words, the combination does not teach determining if the structure will fit horizontally into the display area, and causing the nodes at the edges of the display area to be overlapped, as is recited in claim 6.

Like the combination of Herman, Lewis, and Martino described above, Robertson discloses a method for presenting hierarchical information via trees. More specifically, and in

regard to the claimed invention, Robertson discloses warping trees in order to display more information in a given display area. For example, figure 2 presents a given tree that is not warped. As shown in figure 2, nodes 204, 205, and 219 are not fully presented in the display area. Figure 3 shows the tree of figure 2 warped. As shown by figure 3, all of the nodes are presented in the display area, and more particularly, the nodes are overlapped, including those at the edge of the display area. Lastly, Robertson presents trees displayed left-to-right (for example, see figure 2), which is similar to the above-described combination of Herman, Lewis, and Martino which presents trees displayed top-down (for example, see figure 4 of Herman).

It would have been obvious to one of ordinary skill in the art, having the teachings of Herman, Lewis, Martino, and Robertson before him at the time the invention was made, to modify the tree structures of Herman, Lewis, and Martino, such that they are sized to fit within a single display area as is done by Robertson. In other words, it would have been obvious to modify the trees of Herman, Lewis, and Martino such that there exits a determination of whether the tree structure fits into the display area, and also, warping the tree by causing the nodes to be overlapped, as is done by Robertson. It would have been advantageous to one of ordinary skill to utilize such a combination because warping the tree structure allows more of the tree to be displayed within the display area, as is shown by Robertson (see column 4, line 49 – column 5, line 9). Consequently, this provides the user the ability to more efficiently view the overall organization of the hierarchically linked information displayed by the tree, as is demonstrated by Robertson.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Herman, Lewis, and Martino described above, and also over U.S. Patent No. 5,504,853, which is attributed to Schuur et al. (and hereafter referred to as "Schuur"). As shown above, the combination of Herman, Lewis, and Martino presents a method, like that of claim 1, which includes a step of identifying and performing any node compression necessary for displaying linked information based on the layout of a plurality of nodes. The combination, however, does not explicitly disclose sizing the tree structure such that it fits within a single display area. In other words, the combination does not teach determining if the structure will fit horizontally into the display area because certain levels are too wide, and causing the nodes at wide levels to be folded into multiple rows in the display area, as is recited in claim 7.

Like the combination of Herman, Lewis, and Martino described above, Schuur discloses a method for presenting hierarchical information via a tree of linked nodes (see column 2, lines 53-60). Regarding the claimed invention, Schuur discloses an "overview window," which displays this tree in a single display area (see column 9, lines 11-16). Reference number 100 in figure 11 shows such an overview window. As shown by this overview window, a tree is presented in which nodes are folded into multiple rows in the display area in order to fit the entire tree into the horizontal width of the overview window.

It would have been obvious to one of ordinary skill in the art, having the teachings of Herman, Lewis, Martino, and Schuur before him at the time the invention was made, to modify the tree structures of Herman, Lewis, and Martino, such that they are sized to fit within a single display area as is done by Schuur. In other words, it would have been obvious to modify the trees of Herman, Lewis, and Martino such that there exits a determination as to whether the tree

structure horizontally fits into the display area because certain levels are too wide, and also, causing sibling nodes at these wide levels to be folded into multiple rows in the display area, as is done by Schuur. It would have been advantageous to one of ordinary skill to utilize such a combination because, as shown by Schuur, this allows the entire tree to be displayed within the display area. A tree structure presented within a single display screen provides the user the ability to more efficiently view the overall organization of the hierarchically-linked information displayed by the tree than that of a tree structure that is not fitted within a single display screen, as is demonstrated by Schuur.

Allowable Subject Matter

Claims 3-4 and 25-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

Claims 3-4 are considered allowable for the reasons provided in the previous Office Action.

Regarding claim 25, the prior art, specifically Herman, Lewis, and Martino described above, teaches a method like that of claim 1, which comprises: dynamically identifying a focus node for any of a plurality of nodes; generating a degree of interest value for each of the plurality of nodes, the degree of interest value relative to the focus node and sibling node order and corresponding to a node size; laying out the plurality of nodes positioned based on associated

links and sized based on associated degree of interest values in a tree structure; identifying and performing any node compression necessary for boundingly displaying the hierarchically linked information based on the layout of the plurality of nodes; and displaying the hierarchically linked information based on the layout of the plurality of nodes and node compression on a display area. However, the prior art does not teach allocating space for the focus node, parents of the focus nodes, and siblings of the focus node in order to the right and left of the focus node until a first percentage of the horizontal partition of the display space remains, and horizontally compressing the subtrees associated with a sibling node to fit below the sibling node, as is recited in claim 25.

In reference to claims 26 and 27, the prior art, specifically Herman, Lewis, and Martino described above, teaches a method like that of claim 1, which comprises: dynamically identifying a focus node for any of a plurality of nodes; generating a degree of interest value for each of the plurality of nodes, the degree of interest value relative to the focus node and sibling node order and corresponding to a node size; laying out the plurality of nodes positioned based on associated links and sized based on associated degree of interest values in a tree structure; identifying and performing any node compression necessary for boundingly displaying the hierarchically linked information based on the layout of the plurality of nodes; and displaying the hierarchically linked information based on the layout of the plurality of nodes and node compression on a display area. The prior art, however, does not teach that for large numbers of nodes to be displayed in a first direction of the display area: determining a regular free layout zone; at least one compression zone; and at lest one aggregation zone in the first direction of the display area; and allocating a large percentage of the display space to the regular free layout

zone, a smaller percentage of the display area to the at least one compression zone, and the smallest percentage to the at least one aggregation zone in the first direction, as is recited in claim 26. As claim 27 depends upon claim 26, and includes all of the limitations of claim 26, claim 27 is considered allowable for the reasons in which claim 26 is allowed.

Conclusion

The prior art made of record on form PTO-892 and not relied upon is considered pertinent to applicant's disclosure. The applicant is required under 37 C.F.R. §1.111(C) to consider these references fully when responding to this action. The Mendenhall et al. U.S. Patent cited therein presents a tree structure, such if the above-described method of Martino were applied to it, the siblings would be sized according to their order. The Lamping et al. U.S. Patent cited there presents a bounded tree structure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blaine Basom whose telephone number is (703) 305-7694. The examiner can normally be reached on Monday through Friday, from 8:30 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cabeca can be reached on (703) 308-3116. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

btb

JOHN CABECA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100